

Climate Change Impacts & Water in San Diego



The San Diego Foundation's *Climate Initiative*
City of San Diego CMAP Taskforce
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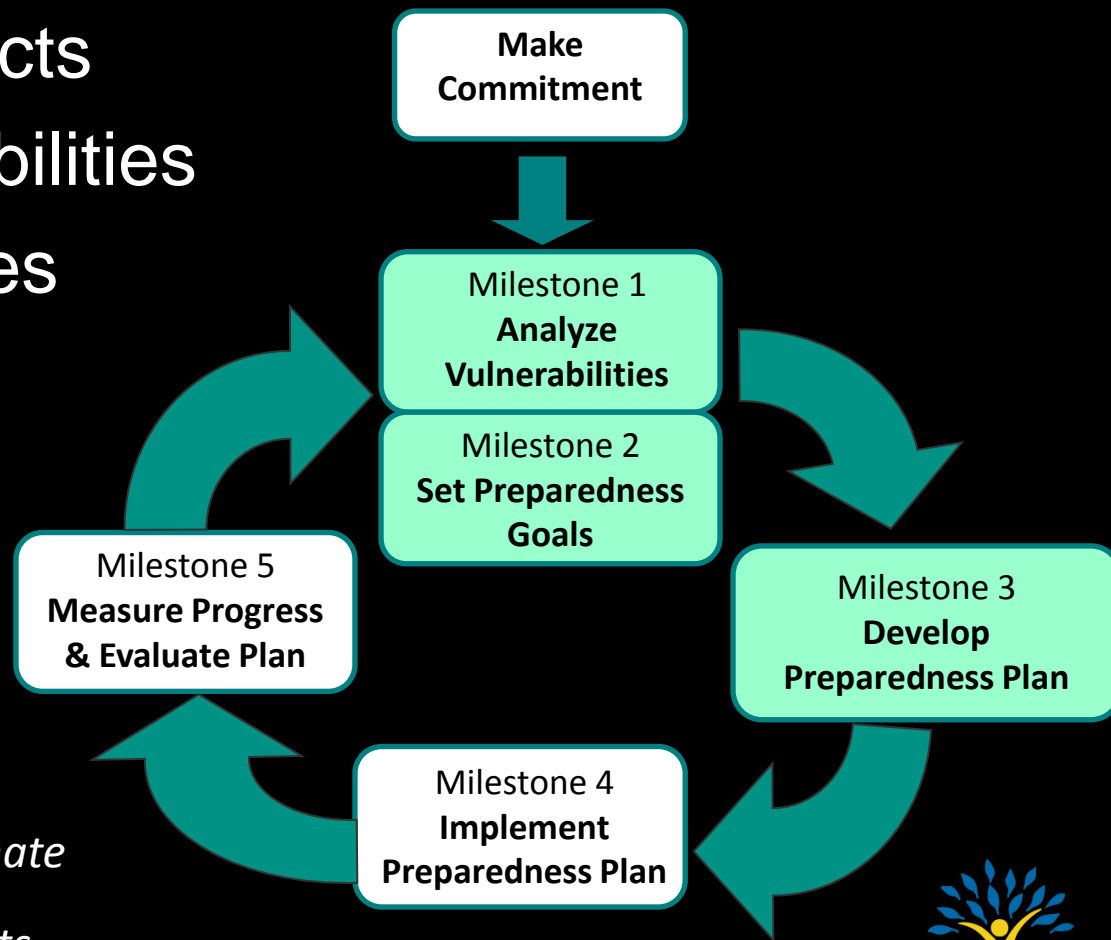
Five-pronged approach:

1. Support Research to Inform Public Policy
2. Provide Technical Experts (ex. ICLEI)
3. Build Public Awareness
4. Convening /Collaboration
5. Nonprofit/Community
Engagement



Climate Adaptation Framework

1. Understand Impacts
2. Evaluate Vulnerabilities
3. Identify Responses



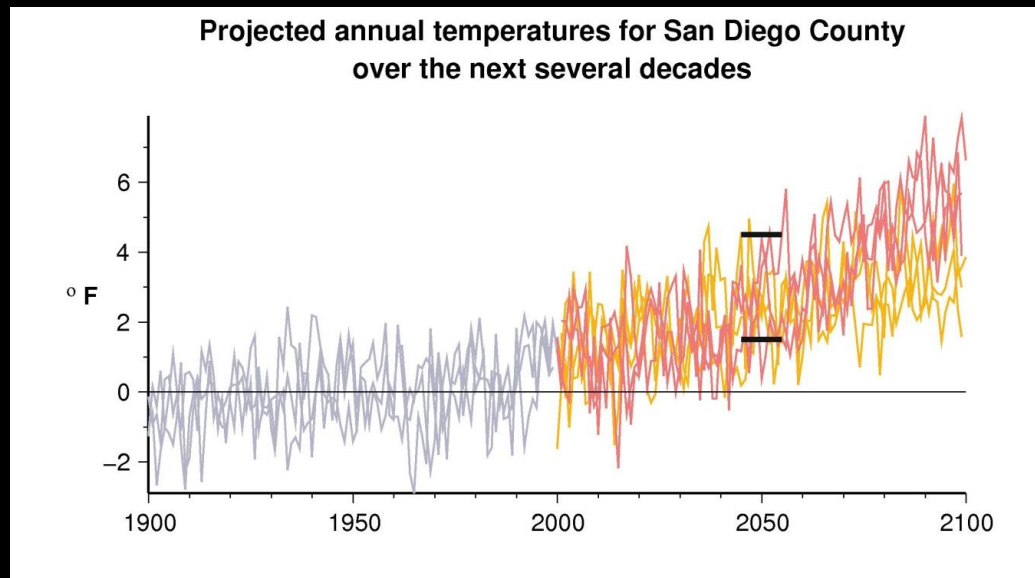
Five Milestones for Climate Adaptation

From: ICLEI's Preparing for Climate Change: A Guidebook for Local, Regional and State Governments



Regional Climate Change

Average annual temperatures in San Diego will be between 1.5 & 4.5°F higher by 2050, with expected temperature rise statewide by 2100 of 4 to 9°F.

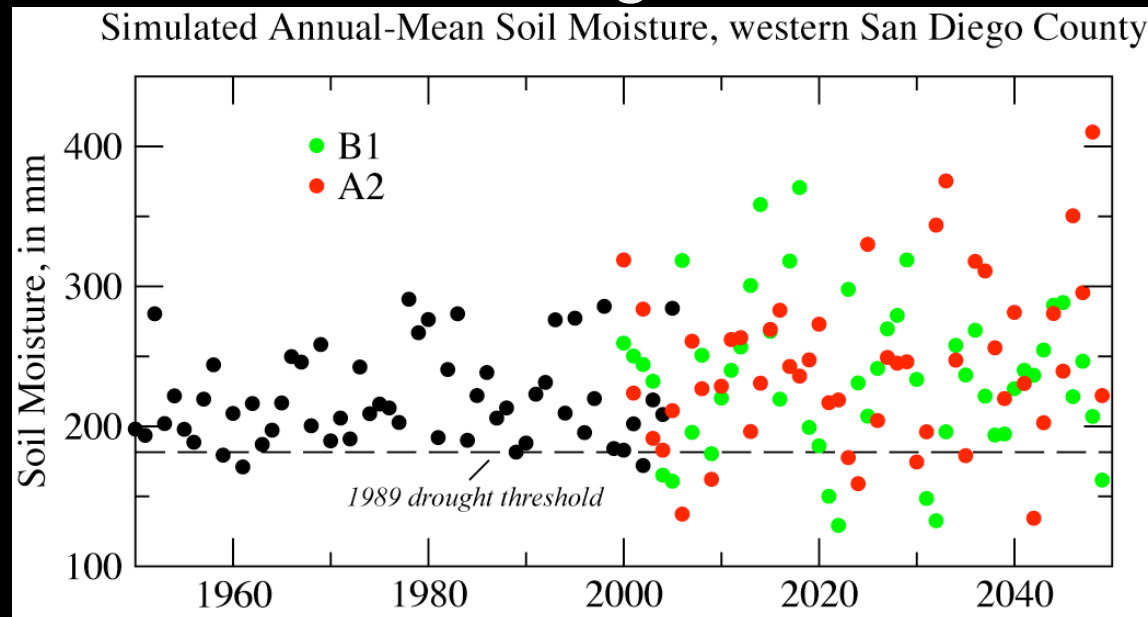


Source: Focus 2050 Study



Precipitation Variability

While models differ on climate impacts to precipitation, they generally find greater variability. This means wetter wet years, and increased vulnerability to drought



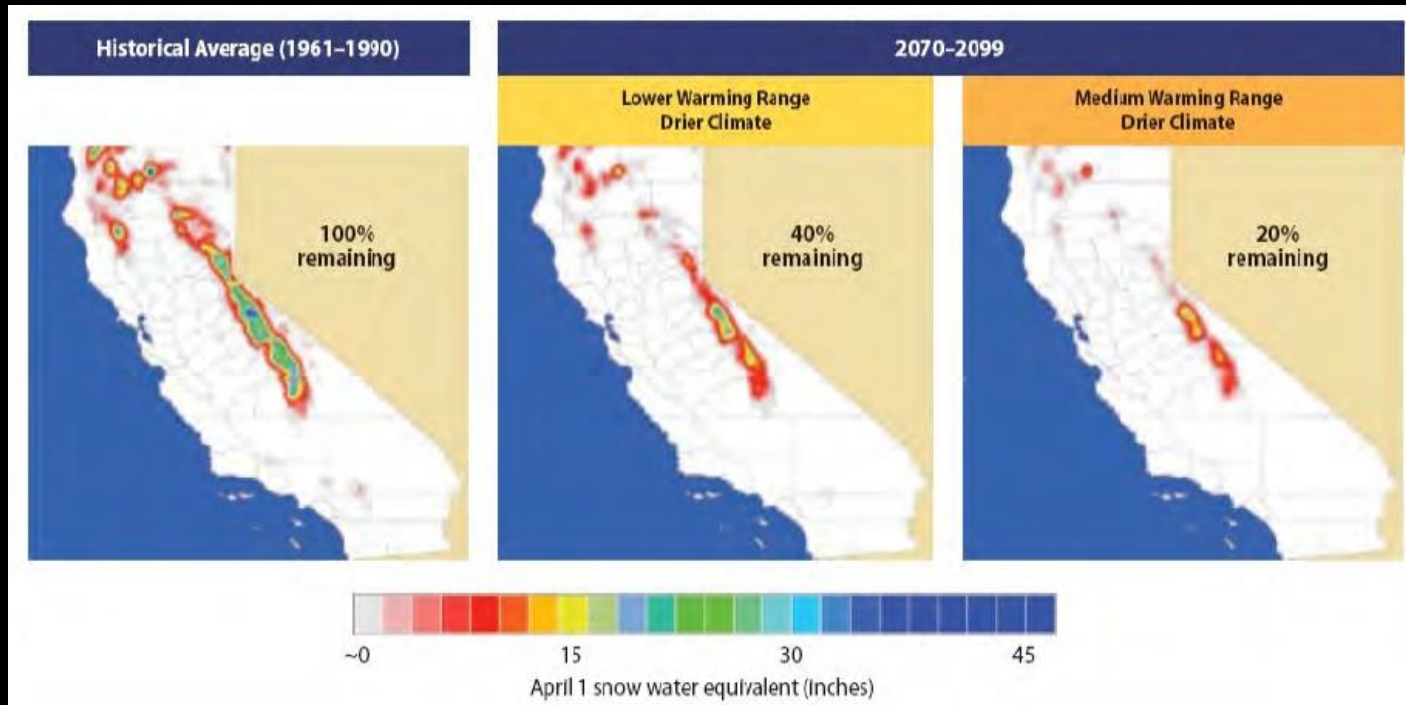
Source: Focus 2050 Study



Imported Water Supplies

Typically, 75-95% of region's water supplies are imported. In the future fewer imports will be available to a growing population

Projections for California Snowpack

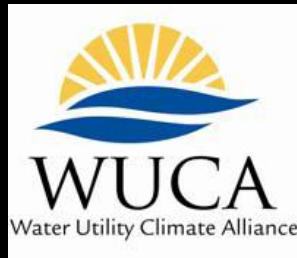


Imported Water Supplies

Competition for imports from the Colorado River Basin will likely increase as droughts intensify in the American Southwest



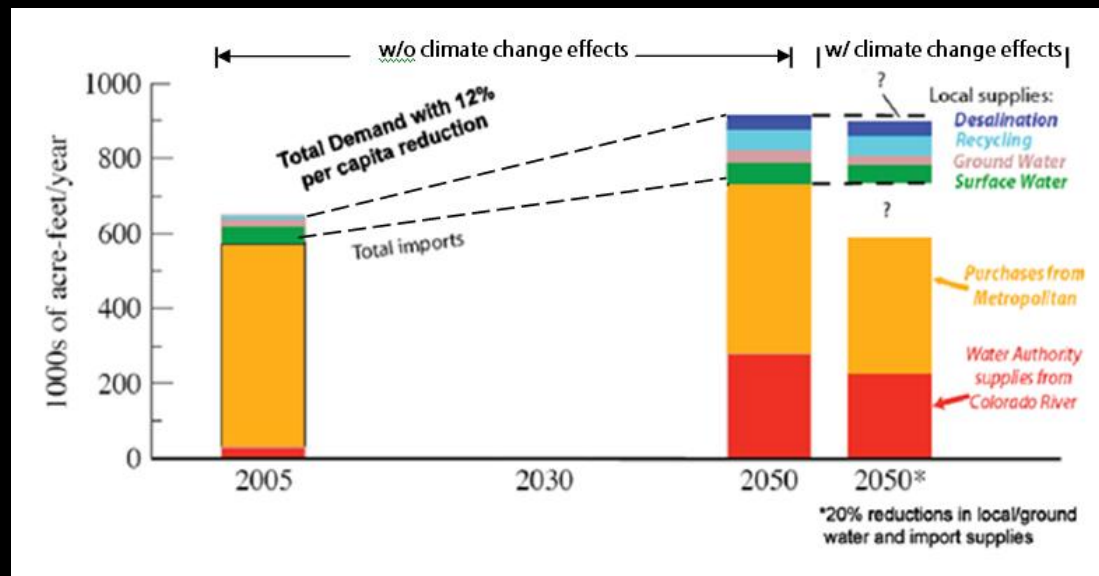
Integrating Impacts into Regional Planning



Take Away for Local Governments

Despite existing plans for water conservation, desalinization, and recycling, demand for fresh water will outstrip supply by 2050 if current trends continue

Summary of Regional Water Supply and Demand With and Without Climate Change Impacts



Vulnerabilities and Water

Potential Vulnerabilities from Climate Impacts


1. Fewer imported water supplies available for existing residential, municipal, and commercial users
2. Increased pressure to meet local water demand through local supplies
3. Difficulty meeting increase in water demand for new development & growth
4. Exposure to more frequent and intense droughts
5. Increasingly expensive water rates
6. Greater risk of floods impacting infrastructure




What Can We Do?

- Water conservation!
Conservation = GHG Mitigation & Adaptation
- Enhance local supplies
- Take climate change into account in long term planning for land use and growth

Adaptation Options

VULNERABILITY (pressure on economy, physical infrastructure, society, environment, etc)			ADAPTATION OPTIONS (potential responses to manage vulnerabilities)	Source of Adaptation Option
Lower imported water supplies available for residential, municipal, and commercial users, and exposure to extended and more intense droughts				
	1	Meter all water uses to monitor, track, and bill for actual use		ICLEI Clean Air Partnership
	3	Prioritize water conservation in municipal code		Phoenix
	5	Support inclining block rate or volumetric water pricing to encourage efficient use		ICLEI CAP
	6	Require Landcape Companies to obtain certification showing that they have completed a water management/conservation training		Naples EPA
	8	Require buildings to obtain complete water efficieny retrofit on resale		San Diego
	10	Require use of water-efficient measures (indoor & outdoor) in all new municipal facilities or at time of renovation		Punta Gorda
	12	Integrate water conservation concerns into the municipal project procurement process		Los Angeles
	15	Work with local Water Districts to update "Water Shortage Response Ordinance" to include reduced imported supplies		ICLEI
	16	Strengthen and enforce water waste prohibitions		Rohnert Park

Adaptation Options

VULNERABILITY (pressure on economy, physical infrastructure, society, environment, etc)			ADAPTATION OPTIONS (potential responses to manage vulnerabilities)	Source of Adaptation Option
Increased pressure to meet local water demand through local supplies				
	18	Facilitate & educate residents and businesses about appropriate uses and benefits of graywater systems and new standards		Malibu / San Diego County
	20	Support expanded exploration of desalination or indirect potable reuse to augment local supplies		Carlsbad Sand City
Difficulty meeting increase in water demand for new development & growth				
	21	Require new buildings/developments to plan for gray or recycled water systems		Chula Vista Phoenix
	23	Require large new developments to provide "water offsets" for additional water demand		Cambria
Increasingly expensive water rates				
	24	Target outreach of existing efficiency upgrade programs to low-income neighborhoods, rental market, and small businesses		The Climate Gap Report
Lower local ground water supplies				
	27	Establish a limit on area of impervious surface allowable in new development to improve groundwater recharge (mainly benefit private wells)		Punta Gorda
Raised threat to physical infrastructure from floods				
	32	Work through the County's Multi-Jurisdiction Hazard Mitigation Plan process to update flood (and other hazard) risk as it increases with climate change impacts		ICLEI
	33	Incorporate increased flood risk into General Plan Safety Element		ICLEI
	34	Avoid siting new development in areas with less than a 200-year level of flood protection		Keene California DWR

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Thank you!